

Digital Piracy

Matthew N. O. Sadiku^{1*}, Tolulope J. Ashaolu², Abayomi Ajayi-Majebi,³
and Sarhan M. Musa¹

¹Roy G. Perry College of Engineering, Prairie View A&M University, Prairie View, TX, USA

²College of Food Science, Southwest University, Beibei, Chongqing, P.R. China

³Department of Manufacturing Engineering, Central State University, Wilberforce, OH, USA

*Corresponding author details: Professor Matthew N. O. Sadiku; sadiku@ieee.org

ABSTRACT

Digital refers to the practice of downloading and distributing copyrighted contents such as music, video, software, and e-book without permission. It is a fact of life for book publishing industry, entertainment industry, movie industry, television sector, film industry, etc. Piracy is regarded as a crime. Not only does piracy hurts and cause economic loss to these companies, it also inhibits incentive to keep creating. Unfortunately, there is no "silver bullet" solution to the problem of digital piracy. This paper provides an introduction to digital piracy.

Keywords: digital piracy; online piracy; internet piracy; copyright infringement

INTRODUCTION

Piracy is the act of illegally reproducing or distributing copyrighted materials such as computer programs, books, music, and films. Before the advent of personal computers, most individuals did not have the means to copy works in order to print books, press records, or burn CD. They also did not have the ability to distribute copies beyond their immediate circle of family and friends [1].

Piracy and copycats have been a major problem since the dawn of digital age and the explosion of WWW (World Wide Web). The fast adoption of the Internet and the digitization of information products have led an increasing number of consumers to copy and distribute digital products without the authorization of their legal owner. A lot of adults and youths delight in sharing software, games, music, e-books, pictures, etc. They do not perceive digital piracy to be an ethical issue. They see it as a way of helping and being nice to others. Pirates will always find a way. They have found various ways to bypass the Internet giant's and keep their videos online for millions to watch. Technology has expanded many people's ability to access pirated material and store it with ease.

When it comes to piracy, everyone is involved, one way or another. As typically shown in Figure 1, people of all ages are involved in piracy [2]. Since adolescence is a period of intensive use of media and growth of digital competence, piracy is one of the most important risk behaviors among adolescents. Digital products (such as music, movies, books, and software) are illegally used all over the world. Social media sites are increasingly popular for selling pirated physical products. Commercial piracy is a major concern to the producers of digital contents, both in developed and developing nations. For example, millions of people worldwide illegally downloaded the fifth season of "Game of Thrones." Purchasing digital content legally allows you to listen, play, read, or use that content yourself. It does not give you the right to copy it, share it, trade it, let

others download it or make money off of it for yourself.

There are two rival views when discussing the ethics of illegal downloading. On the one hand, some so called "fundamentalist libertarians" claim that all ideas and artistic creation should be held in common and be freely accessible to all. On the other hand, the so-called "fundamentalist protectors" think that illegal downloading is equivalent to common theft [3].

WHAT IS DIGITAL PIRACY?

Digital piracy, also known as online piracy or Internet piracy, refers to the unauthorized creation, distribution, and consumption of software, e-book, movies, music, etc. It is an illegal reproduction and distribution of copyrighted content (such as software, electronic books, movies, music, films, TV programs, video games, photos, and periodicals) through electronic means for profit. Piracy grew out of computer hacking. Piracy occurs when a person copies, distributes or sells a digital product, without the prior permission of the creator of the product. Piracy takes place through peer-to-peer networks, cloud services, illegal streaming sites, and online auctions. Digital piracy may be regarded as the behavior of consuming an illegal copy of digital products. Although digital piracy can take place in any digital medium, there are three major media that receive considerable attention: music piracy, video piracy (e.g., movies or TVshows), and software piracy (e.g., computer programs or games) [4].

The most popular reason for digital piracy is the unwillingness to pay the full price of a digital content. Digital contents are becoming quite expensive and not everyone can afford them. Some believe that it is right to freely distribute to less fortunate and give everyone a chance to use it. Some people do it for financial gain. High prices for media goods, low incomes, and cheap digital technologies are other reasons causing global spread of digital piracy.

Regardless of the motivation, unauthorized copying of copyrighted content is illegal because it infringes on the exclusive rights granted to the copyright holder. The copyright holder is usually the work's creator, or a publisher or other business to whom copyright has been assigned [5].

There are five main types of software piracy [6]:

- **Counterfeiting:** This type of piracy is the illegal duplication, distribution, or sale of copyrighted material with the intent of imitating the copyrighted product.
- **Internet Piracy:** This occurs when unauthorized software is downloaded from the Internet.
- **End User Piracy:** This occurs when an individual reproduces copies of software without authorization.
- **Client-Server Overuse:** This type of piracy occurs when too many users on a network are using a central copy of a program at the same time.
- **Hard-Disk Loading:** This occurs when a business sells new computers with illegal copies of software loaded onto the hard disks to make the purchase of the machines more attractive.

CONSEQUENCIES OF PIRACY

The consequences of digital piracy are high. The main consequence of digital piracy is that it seriously limits copyright owners in their ability to profit and control how digital products get to consumers. The costs of piracy still outweigh the benefits. Piracy reduces legal sales and decreases profits. For example, the music, film, and game industries claim that digital piracy costs them billions of dollars each year.

- **Copyright:** This gives a person's exclusive right to reproduce, publish, or sell original creation of the material. This kind of intellectual property (ideas, inventions, and creative expressions) is now the victim of digital piracy. Piracy is a type of online copyright infringement. It is the unauthorized digital reproduction of intellectual property. Copyright infringement can come in the form of counterfeit programs, client server overuse, or digital piracy. The consumers/purchasers are considered users and not owners.
- **Publishing Industry:** Digital piracy, which was long confined to music and movies, is spreading to books. With electronic books growing in popularity, digital piracy casts shadow over e-book industry and it appears that e-book theft is unlikely to go away. A pirated book can cause damages to the author, the publisher, the bookseller, and everyone involved in the book industry. Because of this, some publishers may try to minimize theft by delaying releases of e-books for several weeks after physical copies go on sale.
- **Entertainment Industry:** Digital piracy is hurting the entertainment industry, from music to sports. It badly harms the movie industry, television sector, the film industry, etc. Although competition is high all the levels of entertainment industry, they suffer a huge loss due to piracy [7].
- **Software Industry:** Digital piracy has posed a significant threat to the development of the software industry and the growth of the digital media industry. For example, Figure 2 shows software piracy in developed nations [8].
- **Economic Loss:** Piracy causes significant losses to the US economy. People lose their work because of piracy and

stolen profits. Digital piracy steals the income from millions of hardworking people. Economic losses due to piracy is trending upwards.

- **Cybersecurity:** Digital piracy has become a menace to cyber and legal world. Pirated products can be used by hackers to spread virus and malware.
- **Creative Process:** Piracy harms the creative process as well as the creator of digital content and inhibits incentive to keep creating.

IDENTIFYING PIRATED CONTENT

Pirated contents and the websites that sell or share them are illegal. To help you identify pirated software, the Business Software Alliance (BSA) recommends the following tests [9]:

- (1) **Trust your instincts.** Check the online seller's price against the estimated retail value of the software. When in doubt, find a different source for the content that you know is legitimate.
- (2) **Make sure it is authentic.** Be suspicious of software products that do not include proof of authenticity such as original disks, manuals, licensing, services policies, and warranties.
- (3) **Beware of backups.** Avoid sellers offering to make backup copies. This is a clear indication the software is illegal.
- (4) **Steer clear of compilations.** Be wary of compilations of software titles from different publishers on a single disk or CD.
- (5) **Get seller's contact information.** If you cannot contact the seller after making a purchase, you may have no recourse if the product turns out to be pirated. Make certain to get the seller's address, if possible.
- (6) **Keep Receipts.** Printout a copy of your order number and sales confirmation and file them for your records. This information will help build your case if it is pirated and further action is needed.
- (7) **Ensure secure payment.** Make certain that the Internet connections you are using are secure.
- (8) **Understand transaction terms.** Get a clear understanding of the merchant's policies concerning returns and refunds, shipping costs, and security and privacy protection before you complete the transaction.
- (9) **Do your homework.** Before making a purchase, do as much research on the seller and vendor as you can. Check the seller's rating or feedback comments when on an auction site.
- (10) **Ask the experts.** Contact the BSA with any concerns or questions by calling 1-888-NOPIRACY or visiting our Web site www.bsa.org.

HOW TO PREVENT PIRACY

It is difficult to completely prevent content piracy. Only you can protect yourself from the dangers of piracy. There are several ways you can ensure that you avoid downloading copyrighted material. We can mitigate against it by applying the following tips [10-12]:

- **Remove the Incentive:** The incentive for doing digital piracy must first be removed. The incentive for the consumers to look for pirated content must also be removed.

- **Awareness:** We need to increase public education and raise awareness about piracy in cooperation with industry and law enforcement. We should let the consumer know that piracy is a crime and it is illegal. Increasing the awareness of piracy as a crime, obtaining information about crime and identifying criminals will go a long way in bringing the criminals to justice.
- **Cooperation:** It may be beneficial to get together and cooperate with all concerned companies. Industry players, Internet service providers, and researchers should tackle digital piracy together. Lobbying efforts can help in passing stronger copyright laws. Global collaboration among industries and governments to educate consumers of the dangers of piracy is necessary.
- **Regulation:** Anti-piracy regulations can reduce piracy consumption and increase legal sales. Different kinds of digital content have their own legal protection such as Digital Rights Management (DRM) and Digital Millennium Copyright Act. In the United States, the federal law enforcement operation targets online services that provide illegal copies of copyrighted works. The copyright infringement is usually confronted through lawsuits in civil court. The No Electronic Theft Act (NET) was a US federal law passed in 1997. It provides for criminal prosecution of individuals who engage in copyright infringement. The US Digital Millennium Copyright Act (DMCA), signed into law in 1998, provides online intermediaries from liability for copyright infringement.
- **Software watermarking:** Software owners can also include a watermark within the source code. Use watermarks on your image files. Place a watermark with your website, social media info, or contact info directly over the image before you finalize the file.
- **Obfuscation:** This is the technique for making a product's source code unintelligible to humans.
- **Tamper-proof software:** This is designed to be protected against modification and reverse engineering. It may involve protecting password and videos by encrypting it.

CONCLUSION

Digital piracy is the act of downloading and or distributing copyrighted materials and intellectual property without paying for them. It is a violation of federal copyright laws. The laws on copyright protection and piracy are clear and the penalties are heavy. In spite of its illegality and penalties, digital piracy is still widely practiced and remains a perennial problem around the world [13].

Digital piracy is most rampant in nations with emerging economies such as China and India. It has been increasing recently. This poses a global concern and great challenges for businesses in the long run. Digital piracy is a problem which will not be eliminated, but it can be curbed by a mutual cooperation between developed and developing nations. Containing the problem will also involve a deliberate strategy that involves copyright holders, government, and Internet intermediaries. Each country must enforce their intellectual property laws and make sure that those who pirate software face consequences. Considering the global scope of piracy activities, there is cause for both hope and alarm. For more information about digital piracy one should consult the books in [14,15].

REFERENCES

- [1] W. L. Hosch, "Piracy: Copyright crime," <https://www.britannica.com/topic/piracy-copyright-crime>
- [2] "What would save the music industry from digital piracy?" June 2015, <https://www.debatingeurope.eu/2015/06/26/what-would-save-the-music-industry-from-digital-piracy/#.YUJ5D51KguU>
- [3] C. Barry, "Is downloading really stealing? The ethics of digital piracy," April 2015, <https://theconversation.com/is-downloading-really-stealing-the-ethics-of-digital-piracy-39930>
- [4] J. R. Ingram, "Digital piracy," in J. S. Albanese (ed.), *The Encyclopedia of Criminology and Criminal Justice*. John Wiley & Sons, 2014.
- [5] "Copyright infringement," *Wikipedia*, the free encyclopedia, https://en.wikipedia.org/wiki/Copyright_infringement
- [6] "Types of piracy," <https://www.veritas.com/company/legal/anti-piracy/types-of-piracy>
- [7] "6 Tips for stopping digital piracy," <https://popcornhorror.com/6-tips-stopping-digital-piracy/>
- [8] digital piracy and security," April 2021, <https://www.sonisvision.in/blogs/post/digital-piracy-and-security>
- [9] "The societal costs of digital piracy," <https://www.webroot.com/us/en/resources/tips-articles/the-societal-costs-of-digital-piracy>
- [10] A. Kent, "6 Ways to stop digital piracy," August 2021, <https://www.viaccess-orca.com/blog/six-ways-to-stop-digital-piracy>
- [11] "How to stop software piracy," <https://www.redpoints.com/blog/how-to-stop-software-piracy/>
- [12] P. Belleflamme and M. Peitz, "Digital piracy," in J. G. Backhaus (ed.), *Encyclopedia of Law and Economics*. New York: Springer Science+Business Media, 2014.
- [13] "Online piracy," *Wikipedia*, the free encyclopedia, https://en.wikipedia.org/wiki/Online_piracy
- [14] A. S. Diet, *Digital Pirates: Policing Intellectual Property in Brazil*. Stanford University Press, 2020.
- [15] S. Meyer, *Understanding Digital Piracy (Digital and Information Literacy)*. Rosen Classroom, 2013.

ABOUT THE AUTHORS

Matthew N.O. Sadiku is a professor emeritus in the Department of Electrical and Computer Engineering at Prairie View A&M University, Prairie View, Texas. He is the author of several books and papers. His areas of research interests include computational electromagnetics and computer networks. He is a fellow of IEEE.

Tolulope J. Ashaolu is the author of several papers and two books. His research interests include functional foods and food microbiology.

Abayomi Ajayi-Majebi is a professor in the Department of Manufacturing Engineering at Central State University in Wilberforce, Ohio. In 2015 he was honored by the White House as a Champion of Change for his significant contributions to the engineering education of minority students. He is a senior member of both the Society of Manufacturing Engineers and the American Society for Quality.

Sarhan M. Musa is a professor in the Department of Electrical and Computer Engineering at Prairie View A&M University, Prairie View, Texas. He has been the director of Prairie View Networking Academy, Texas, since 2004. He is an LTD Sprint and Boeing Welliver Fellow. His areas of research interests include computational electromagnetics and computer networks.

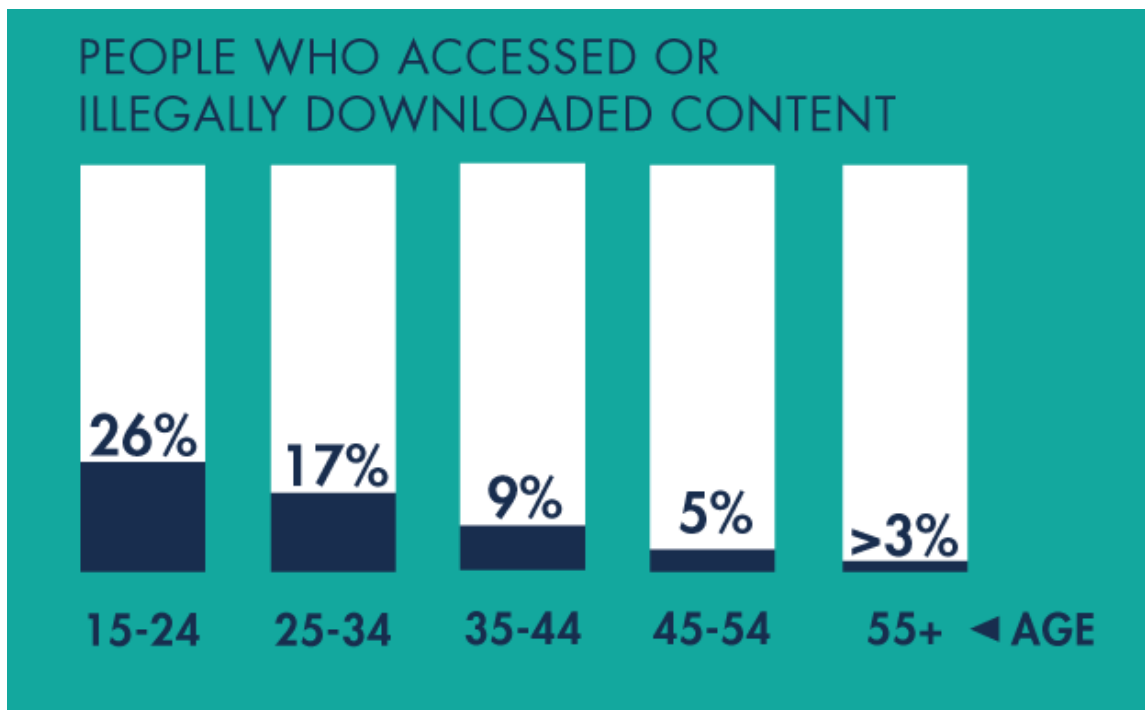


FIGURE 1: Age distribution of pirates in Europe [2].



FIGURE 2: Software piracy in developed nations [8].